

REMARKS

Claim 1 is amended. Claim 6 is cancelled. New claims 14-17 are presented. ~~The~~ claims are fully supported by the application as originally filed, and no new matter is added.

Claims 2 and 4 are allowed.

Claims 1, 3 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Saita (US 5,327,986) in view of Steinmeier et al. (DE 19902556). Applicants traverse the rejection to the extent that it can be maintained.

Method claims 1-5, as amended, and new claims 14-17 relating to operating a steering apparatus for an automotive vehicle are presented.

Method claim 1 is amended to incorporate cancelled claim 6 and to recite that when only one of the two motors for applying an auxiliary steering force is being operated that motor failure detection for the only one motor is carried out. As explained at page 9 paragraph 29, the method provides a means to detect which of the motors has failed from a difference in motor operating states during steering (Also, figures 5 and 9 and the fifth example described beginning at page 28 paragraph 114).

Saita discloses a steering system having a rack shaft and two motors. Saito also discloses that the two motors are operated when a large steering assist is needed, for example at low speed, and that only one motor is operated when the vehicle speed becomes greater than some predetermined value (Summary of the Invention, and column 3 lines 10-40). The steering system of Saita contemplates that both steering motors are in an operational state, i.e. neither motor has failed. There is no teaching or suggestion by Saita that a motor failure detection can be performed nor does Saita teach or suggest how such detection could be carried out.

Steinmeier et al. discloses a rack and pinion steering system assisted by two servo motors. However, there is no method described to detect the failure of one of the motors. Applicant respectfully submits that Saita in view of Steinmeier et al. fails to teach or suggest the method of claim 1; and that claim 1, as amended, is allowable over the art. As claims 3 and 5

depend from claim 1, they are likewise allowable. Applicants request that the rejection on this ground be withdrawn.

Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over Saita (US 5,327,986) in view of Steinmeier et al. (DE 19902556) and further in view of Geyer et al. (US publication no. 2003/0111290). Applicants traverse the rejection to the extent that it can be maintained.

Claim 6 is cancelled. Geyer et al. describe a method for steering a vehicle after a failure of one of a first and a second steering motor is detected. The method disclosed by Geyer et al involves comparing an outer cornering steering load and an inner cornering steering load, and if the difference exceeds a threshold value, mechanically coupling the two motors through a differential (Column 4 paragraph 44). The method claimed by the Applicants is direct to a particular way of detecting a motor failure, i.e. when only one of the two motors for applying an auxiliary steering force is being operated that motor failure detection for the only one motor is carried out. The combination of Saita, Steinmeier et al. and further in view of Geyer et al. fail to teach or suggest Applicants' invention as a whole.

In view of the above amendments and remarks, Applicants respectfully request a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,



Douglas P. Mueller

Reg. No. 30,300

MERCHANT & GOULD P.C.

P.O. Box 2903

Minneapolis, MN 55402-0903

Telephone: (612) 336.4722

February 28, 2005  
Date

23552

PATENT TRADEMARK OFFICE